Behavioural and Cognitive Psychotherapy, 1998, 26, 345–357
Cambridge University Press. Printed in the United Kingdom

Clinical Section

CHANGES IN ATTITUDES TOWARD INSOMNIA FOLLOWING COGNITIVE INTERVENTION AS PART OF A WITHDRAWAL TREATMENT FROM HYPNOTICS

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Abstract. This study was designed to investigate the effects of a short-term cognitive-behavioural intervention, as part of a comprehensive medical project of withdrawal from hypnotics, on attitudes toward insomnia. Twenty-four subjects volunteered to participate in a withdrawal project conducted in a sleep clinic for five weeks. All subjects were chronic users of a long-acting hypnotic, and free from other psychotropic drugs. Along with the gradual decrease in hypnotics' dosage, the programme consisted of sleep evaluations by polysomnography, actigraphic monitoring, daily sleep diaries, and periodical medical examinations. Upon termination of the withdrawal stage, all subjects received a short-term cognitive-behavioural treatment consisting of six sessions and directed at attitude change and correction of misconceptions about sleep and insomnia, and on promoting psychological strategies for coping with the sleep disturbances. Attitudes toward insomnia were measured by the DBAS – Dysfunctional Beliefs and Attitudes about Sleep Scale, administered at three points of time: on the first day of the programme (Time 1), at the termination of the medical withdrawal stage (Time 2), and a week after completion of the short-term cognitive behavioural treatment (Time 3). A multivariate analysis showed a significant effect of the time of measurement on all five subscales of the DBAS. Subsequent analyses indicated that the major change in attitudes was specific to the direct cognitive-behavioural intervention and occurred between Time 2 and Time 3. In follow-ups conducted at 3 and 12 months after completion of the withdrawal project, the majority of the participants (72%) reported refrain from hypnotic use, and regarded the psychological intervention as the major cause of their successful withdrawal from sleeping pills.

Keywords: Insomnia, attitudes, withdrawal, hypnotic, psychological treatment.

Introduction

A growing number of studies have documented the efficacy of psychological interventions in the treatment of chronic insomnia (e.g., Bootzin & Perlis, 1992; Morin,

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1993; Lichstein & Riedel, 1994). Recently, two separate meta-analyses were conducted to examine the results of non-pharmacological therapies for insomnia summarizing 59 (Morin, Culbert, & Schwartz, 1994) and 66 (Murtagh & Greenwood, 1995) treatment outcome studies. Both analyses concluded that nonpharmacological interventions produce reliable and durable changes in sleep patterns and in the subjective experience of sleep, compared to control groups. The improvement obtained by the psychological interventions was also maintained at short- and long-term follow-ups. Disagreement exists, however, as to the most effective single non-pharmacological treatment for insomnia. Whereas Morin et al. (1994) concluded that the most effective single therapy procedure was stimulus control, Murtagh and Greenwood (1995) reached the conclusion that psychological treatments did not differ greatly in efficacy. Greater therapeutic gains were reported among participants who were clinically referred and were not regular users of sedative hypnotics (Murtagh & Greenwood, 1995).

In addition to behavioural techniques (such as stimulus control and sleep restriction procedures) that focus on modifying overt maladaptive behaviours, psychological interventions have incorporated cognitive restructuring methods aimed at altering dysfunctional beliefs and attitudes about sleep that are frequent among insomniacs (Morin, 1993; Morin, Stone, Trinkle, Mercer, & Remsberg, 1993). Insomniacs often complain of a ''racing mind'' and intrusive thoughts. Increasing evidence suggests that the content and affective valence of these types of cognitions, rather than excessive cognitive activity per se, play an important mediating role in insomnia. Negative thoughts (Borkovec, Lane, & Oot, 1981), external and unstable attributions (Van-Egeren, Haynes, Franzen, & Hamilton, 1983), and anxious and dysphoric cognitive styles (Edinger, Stout, & Hoelscher, 1988), were reported to be associated with more severe sleep difficulties. Fichten et al. (1995) found that highly distressed poor sleepers were distinguished from good sleepers, and from poor sleepers who were experiencing minimal distress, in their cognitive-affective evaluations of their activities, namely in how they think and feel both in the day and during periods of nocturnal wakefulness.

A study conducted by Morin et al. (1993) focused on specific attitudes towards sleep and sleep disturbances. Their results showed that older adults with chronic insomnia endorsed stronger beliefs about the negative consequences of insomnia, expressed more hopelessness about the fear of losing control over their sleep, and more helplessness about its unpredictability, as compared to self-defined good sleepers. Their findings suggest that some sleep-related cognitions are maladaptive in nature and may be instrumental in perpetuating chronic insomnia. In other words, cognitive distortions can trigger emotional arousal and feed into insomnia's vicious cycle, which involves emotional distress, dysfunctional cognitions about sleep and further sleep disturbances. They concluded that clinical interventions should, therefore, be aimed at identifying and modifying these maladaptive cognitions as part of the management of insomnia.

Hypnotic-dependent insomnia, defined as chronic use of sleep medication that disrupts sleep, may be the most severe, disabling and hazardous form of insomnia (Lichstein & Riedel, 1994). However, until recently the treatment of individuals who have been actively using hypnotics for their chronic insomnia has been largely overlooked. Most studies focusing on non-pharmacological treatment for insomnia screened out volunteers who were using hypnotics (Lichstein & Riedel, 1994). A few studies included hypnotically medicated insomnia patients but provided them with no

special treatment or revealed weaker therapeutic effects among these patients as compared to nonusers (Morawetz, 1989; Morin & Azarin, 1988; Spielman, Saskin, & Thorpy, 1987). It has been claimed that the drug users, because of their psychological reliance on hypnotics, have low self-efficacy for falling asleep naturally, and this low efficacy may reduce expectations for improvement and consequently undermine treatment (Murtagh & Greenwood, 1995).

Only a handful of studies targeted their psychological interventions specifically for the treatment of hypnotic-dependent insomnia in an attempt to use the non-pharmacological techniques for counteracting the anticipated withdrawal effects or rebound insomnia (Kirmil-Gray, Eagleston, Thoresen, & Zarcone, 1985; Lichstein & Johnson, 1993). A rebound insomnia is defined as a marked worsening of sleep following the abrupt withdrawal of certain benzodiazepine drugs (Kales & Kales, 1983). The rebound syndrome associated with benzodiazepine withdrawal usually occurs during the first to the third night after abrupt discontinuation, although the symptoms may also appear after gradual tapering, especially in patients who have been taking higher than usual doses or have been taking therapeutic doses for an extended period of time (Salzman, 1991). It is possible that these rebound symptoms may cause sufficient clinical distress so as to perpetuate continued drug use (Greenblatt, Harmatz, Zinny, & Shader, 1987; Scarf, 1993). Therefore, there is a general agreement that withdrawal from long term administration of hypnotics should be tapered gradually (Schweizer, Rickels, Case, & Greenblatt, 1991; Mendelson, 1992; Perry & Alexander, 1986), followed by appropriate psychological support (Ashton, 1995a; Otto et al., 1993; Kirmil-Gray et al., 1985).

The present study was designed to investigate the effects of a short-term cognitive intervention, as part of a comprehensive medical project of withdrawal from hypnotics, on attitudes toward insomnia. The purpose of the medical project was to study withdrawal processes from long term usage of benzodiazepines-hypnotics, and to assess the effects of a specific non-benzodiazepine drug as a facilitating factor in the withdrawal process (Pat-Horenczyk, Hacohen, Herer, & Lavie, in press). Consistent with the suggestion that psychological treatment is most effective after patients have been previously persuaded to withdraw from hypnotics, the cognitive intervention was programmed to start upon completion of the pharmacological withdrawal.

Changes in attitudes were examined in three points of time, on the first day of the programme, at the termination of the medical withdrawal stage, and after completion of the cognitive-behavioural treatment. These three measurements served to assess the patterns of attitudinal change within the broader comprehensive and multifactorial bio-behavioural treatment process. As indicated by Lacks and Morin (1992), the relative importance of altering cognitions as opposed to behaviours remains unclear because of the multifaceted nature of these interventions. The current study, which adopted a within-subjects design, will enable us to disentangle the effects of "specific" (cognitive) interventions from those of the "non-specific" factors (related to the withdrawal project) on changes in attitudes about sleep and insomnia. In other words, the impact of the direct cognitive intervention focusing on attitude change can be compared to the non-specific effect (in terms of cognitive change) brought about by the context of participation in a withdrawal project that involves intensive interaction with the professional staff of a sleep clinic.

Method

Participants

Twenty-four subjects (19 women and 5 men) between the ages 33–64 years (mean = 49 years, *SD* = 10.00) participated in the study. The candidates for the study were recruited through magazine advertisements calling for hypnotic users who wished to volunteer for a 5-week withdrawal project conducted in a sleep centre. When they contacted the Sleep Medicine Center they were asked to list the medications that they were currently using, and to specify the kinds, dosages, and duration of use of the hypnotics they had taken recently. Only those who reported flunitrazepam use and no consumption of other psychotropic medications were invited to an interview. An effort was made to increase the homogeneity of the sample by selecting chronic users of benzodiazepine hypnotics. In a preliminary survey of hypnotic consumption, flunitrazepam was found to be the most frequently used long term hypnotic. We thus selected subjects who had used flunitrazepam for at least three months prior to the study with stabilization at a nightly dosage of 1 mg for at least one month before inclusion. All subjects had a history of chronic insomnia (mean = 12 years and 9 months), were chronic users of a long-acting benzodiazepine hypnotic (*M* duration = 8 years, range of 6 months to 20 years of use), and free from other psychotropic drugs.

In the preliminary screening all potential participants underwent a complete physical examination including vital signs, ECG, blood pressure measurement, and blood and urine laboratory tests. They were provided with a detailed description of the withdrawal programme and written informed consent was obtained. Medical and social history was taken and a detailed account of the patient's insomnia, both with and without medications, was obtained.

Instruments

Attitudes toward insomnia were measured by the DBAS – Dysfunctional Beliefs and Attitudes about Sleep Scale (Morin, 1994), a 30-item scale tapping various beliefs, attitudes, expectations, and attributions about sleep and insomnia clustered around five conceptually derived themes: (a) Misattributions or amplification of the consequences of insomnia; (b) Diminished perception of control and predictability of sleep; (c) Unrealistic sleep expectations; (d) Misconceptions about the causes of insomnia; (e) Faulty beliefs about sleep-promoting practices.

The DBAS is a self-administered instrument and was designed to serve as an assessment device to identify dysfunctional cognitions, and also as a clinical tool. The psychometric properties of the DBAS were reported by Morin (1994), and the majority of items have been found sensitive to change with cognitive-behaviour therapy. The participants rated their responses to the statements presented in the questionnaire on a Likert-type 7-point scale ranging from "strongly disagree" to "strongly agree", with high values corresponding to more dysfunctional beliefs.

Attitudes were examined at three points in time, using the DBAS: on the first day of the programme (Time 1), at the termination of the medical withdrawal stage (Time 2), and a week after completion of the short-term cognitive treatment (Time 3).

Follow-up questionnaires were sent after 3 and 12 months to the patients who completed the withdrawal programme, and telephone interviews were conducted with those who failed to return the questionnaires. The respondents were asked to evaluate their sleep quality on a 5-point scale ranging from "very bad" (1) to "very good" (5), and to list the medications they were using at that time. They were also asked whether they generally felt improvement, no change, or worsening in their sleep as compared to their sleep prior to their participation in the study; when change was reported, they were asked to attribute it to possible contributing factors.

Procedure and design

The comprehensive withdrawal programme consisted of a gradual pharmacological withdrawal from chronic use of benzodiazepines under medical supervision. Upon termination of the pharmacological withdrawal stage, all subjects underwent a short-term cognitive treatment consisting of six sessions, aimed at promoting psychological strategies for coping with the sleep disturbances.

The pharmacological withdrawal programme. Along with the gradual decrease in hypnotics' dosage over four weeks, followed by a week of placebo, the programme consisted of:

(a) *Objective measurements of sleep*: Sleep was recorded by polysomnography during the first two nights of each of the first four weeks of the programme, and for three consecutive nights during the final week (a total of 11 nights). Seven-channel polysomnography included measurement of EEG, EMG, EOG, Respiration and Leg Movements. Weekly actigraphic recording (Ambulatory Monitoring Inc) was performed during Weeks 1, 3, and 5 (24 hours for 7 consecutive days both at home and in the sleep laboratory). The actigraphs, unlike the polysomnography, provided measurement of sleep in the natural home environment. The actigraphic results were analysed by the ASA programme (Sadeh, Alster, Urbach, & Lavie, 1989).

(b) *Subjective measurements*: Daily sleep diaries were completed by the participants during the entire 5-week programme and several self-reported questionnaires focusing on benzodiazepine withdrawal symptoms were administered each week (e.g., Bond & Lader, 1974; Tyrer, Murphy, & Riley, 1990). These questionnaires were completed weekly during the morning after the second (or last) night spent in the laboratory.

(c) *Medical examinations*: Complete physical examinations included blood chemistries, hematology and urinalysis (before and at the end of the study). Laboratory tests (haemogram and urinanalysis) were administered before the study and on day 23 for benzodiazepine screening.

The cognitive behavioural intervention. The short-term psychological intervention started immediately after completion of the 5-week pharmacological withdrawal programme and consisted of six sessions of 45 minutes in which the individual sleep difficulties and the related beliefs and attitudes were discussed. The short-term therapy included educational and cognitive components. The patients were provided with a detailed medical report on their sleep patterns under the influence of hypnotics and

during the gradual discontinuation of the sleep medications. In addition, they were provided with basic facts on changes in sleep patterns over the life-span; thus, patients learned to distinguish between normal fluctuations and pathological changes in sleep patterns. Bibliotherapy was also offered, providing general explanations about insomnia-contributing factors and an analysis of the vicious cycle that might reinforce insomnia. Knowledge about withdrawal symptoms and "rebound insomnia" concomitant with discontinuation of hypnotics was also provided. The didactic material was discussed individually and the relevant specific aspects were elaborated. This educative component was accompanied by sleep hygiene information aimed at supplying the patients with knowledge about sleep-promoting habits.

All participants received information on the changes in their own sleep architecture (mainly in their deep [stages 3–4] sleep and REM sleep), their total sleep time, their sleep efficiency, sleep latency, and the number and total time of their nocturnal awakenings. The objective assessments of sleep of each individual (by polysomnography and actigraphy) throughout the withdrawal process were compared and contrasted with the subjective reports obtained by the sleep diaries, and the similarities and discrepancies were discussed in the framework of cognitive techniques.

The cognitive component consisted of the application of classical cognitive restructuring techniques, suggested by Aaron Beck and Donald Meichenbaum, and adapted by Morin (1993) to the area of insomnia problems. They included correcting unrealistic sleep expectations, revising false attributions about the cause of insomnia, and reappraising perceptions of its consequences on daytime functioning. Special emphasis was put on correcting misconceptions with regard to the long-term efficacy of hypnotics and their side effects. Five general categories of such misconceptions were proposed by Morin (1993): misconceptions of insomnia causes, misattribution of the consequences of insomnia, unrealistic sleep expectations, diminished perception of control over sleep, and myths about good sleep practice. For example, the belief that "I can only get a good night's sleep with a sleeping pill" or the conviction that "there is no effect of the sleeping pill on my behaviour during the morning after" were confronted with evidence on the impact of long-acting benzodiazepine hypnotics on sleep, behaviour, memory and performance.

Results

Twenty out of the 24 participants completed the five week withdrawal programme. Three men and one woman dropped out of the study during the second week because of their inability to comply with the protocol requirements. Two additional subjects did not participate in the psychological intervention: one left the country immediately upon termination of the pharmacological withdrawal, and the other dropped out at that stage for family reasons.

Attitude change

A multivariate analysis of variance showed a significant effect of the time of measurement on the combined five themes of the DBAS (Hotelling's $T = 1.52$, $F(2, 32) = 11.80$, $p < .001$). A significant Time × Theme interaction was found ($F(8, 128) = 2.64$, $p < .01$),

https://doi.org/10.1017/S135246589826406X Published online by Cambridge University Press

Table 1. Means and *SD* (in parenthesis) of level of misconceptions about sleep (DBAS) by time of measurement (range 1–7; higher values indicate greater levels of misconceptions)

Theme	Time 1 hypnotics ($N = 24$)	Time 2 end withdrawal ($N = 20$)	Time 3 end CBT ($N = 18$)	Differences between the 3 Times
Consequences of insomnia	5.03***a*** (1.14)	4.83***a*** (1.33)	3.70***b*** (1.33)	T1 = T2 > T3* $p < .01$
Control of sleep	3.94***a*** (1.00)	3.86***a*** (1.07)	3.10***b*** (1.07)	T1 = T2 > T3 $p < .01$
Sleep requirement expectations	3.81***a*** (1.26)	3.52***a*** (1.03)	3.17***a*** (1.47)	N.S.
Causal attributions of insomnia	2.21***a*** (1.13)	1.82***a*** (0.95)	1.97***a*** (1.01)	N.S.
Sleep-promoting practices	3.10***a*** (0.84)	3.00***a*** (0.95)	2.29***b*** (0.69)	T1 = T2 > T3 $p < .01$

Note: Means with different letters are significantly different from each other according to separate paired *t*-tests. A stringent alpha level ($p < .01$) was adopted. For example, regarding the Consequences of Insomnia, the results of T1(a) and T2(a) are not significantly different from each other but they both significantly differ from T3(b).
*T1 = Time 1; T2 = Time 2; T3 = Time 3.

indicating that the attitudinal change was not uniform across all five themes. Table 1 shows a decline in misconceptions following the cognitive intervention in three out of the five themes – those dealing with attitudes towards consequences of insomnia, control and predictability of sleep, and sleep-promoting practices. In all these aspects significant reductions in the levels of misconceptions were found between Time 2 and Time 3.

Sleep diaries

The patients rated on daily sleep diaries their subjective assessment of their sleep latency, sleep quality, total sleep time, number of nocturnal awakenings and their sense of freshness in the following morning – on a 5-point scale in which a higher score indicated better sleep. An examination of the sleep diaries revealed that our subjects reported a deterioration of their sleep quality during the withdrawal process (between Time 1 and Time 2) on four out of the five measures (sleep latency: $t(19) = 5.77$, $p < .001$; sleep quality: $t(19) = 3.05$, $p < .01$; total sleep time: $t(19) = 4.59$, $p < .001$; awakenings: $t(19) = 3.12$, $p < .01$). However, when measured at Time 3 (after the completion of the cognitive-behavioural intervention)[1], the subjective reports indicated major improvement on all subjective sleep parameters, as compared to Time 2 (the termination of the pharmacological withdrawal): sleep latency: $t(13) = -5.38$, $p < .001$; sleep

[1]Four participants (out of the 18) who completed the CBT intervention failed to submit the sleep diaries at Time 3. No differences were found between those four participants and the 14 subjects who did submit the sleep diaries at Time 3, on the pattern of attitudes that were measured at Time 3.

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Table 2. Means and *SD* (in parenthesis) of evaluations of sleep variables in the sleep diaries by times of measurement ranges from 1 (much worse) to 5 (much better)

Sleep variables (subjective report)	Time 1 hypnotics $N = 24$	Time 2 end withdrawal $N = 20$	Time 3 end CBT $N = 14$	Differences between the 3 Times
Sleep latency	3.42***a*** (0.66)	2.41***b*** (0.79)	3.09***a*** (0.99)	T1 = T3 > T2 $p < .01$
Sleep quality	3.17***a*** (0.52)	2.69***b*** (0.66)	3.27***a*** (0.84)	T1 = T3 > T2 $p < .01$
Total sleep time	2.96***a*** (0.36)	2.36***b*** (0.58)	2.85***a*** (0.55)	T1 = T3 > T2 $p < .01$
Number of awakenings	3.27***a*** (0.44)	2.81***b*** (0.92)	3.15***a*** (0.78)	T1 = T3 > T2 $p < .01$
Morning freshness	2.77***a*** (0.61)	2.77***a*** (0.61)	3.11***b*** (0.77)	T1 = T2 < T3 $p < .01$

Note: Means with different letters are significantly different from each other according to separate paired *t*-tests. A stringent alpha level ($p < .01$) was adopted. For example, regarding the Sleep Latency, the results of Time 1(a) and Time 3(a) are not significantly different from each other but they both significantly differ from Time 2(b).
*T1 = Time 1; T2 = Time 2; T3 = Time 3.

quality: $t(13) = -2.66$, $p < .05$; total sleep time: $t(13) = -4.48$, $p < .001$; awakenings: $t(13) = -2.25$, $p < .05$; morning freshness: $t(13) = -2.79$, $p < .05$). According to the subjective assessments, the quality of their sleep returned to the initial levels, and the reported morning freshness improved at Time 3 as compared to Time 1 and Time 2. These patterns, depicted in Table 2, suggest that the cognitive treatment may have helped the patients to realize that their sleep remains similar with and without the use of hypnotics.

Objective sleep data

It is important to note that objective measurements of sleep revealed no significant differences in total sleep time and in sleep efficiency between the average of the two nights of the first week of the project (under fixed daily hypnotic dosage), and the average of the last three nights (under placebo). The only significant differences detected by the polysomnography were in sleep latency ($F(1, 8) = 10.12$, $p < .01$) and number of awakenings ($F(1, 18) = 6.3$, $p < 0.1$). Both measures increased after the complete discontinuation of the sleeping pills, reflecting a slight worsening of sleep quality.

Follow-up. As indicated earlier, follow-up questionnaires were sent after 3 and 12 months to the patients who completed the withdrawal programme and telephone interviews were conducted with four subjects who failed to return the questionnaires. All 18 patients were contacted. They were asked to evaluate their sleep duration, their sleep quality, and their use of hypnotics or anxiolytics. At three months after completion of the withdrawal programme, 83% of the participants reported complete refrain from

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hypnotic usage. None of the rest resumed daily use of hypnotics but rather reported consumption of various anxiolytics on an irregular basis.

These patterns remained constant also at the 12 month follow-up. Seventy-two per cent of the participants reported complete abstinence from hypnotic usage; the other five subjects reported occasional use of sedating anxiolytics. Sixty-seven percent of the subjects who completed the withdrawal programme reported a general improvement in their sleep quality at the 12 month follow-up, compared to the pretreatment period; 22% indicated no change, and only 11% complained about a deterioration in their sleep quality. When asked for their perceptions regarding the causes for the positive change in their sleep, the majority of the patients attributed it to the general commitment to the withdrawal project (72%), to the information regarding sleep and insomnia (67%), and to the psychological intervention (61%).

Discussion

The findings of this study suggest that cognitive-behavioural intervention can lead to a meaningful change in attitudes toward sleep in chronic drug-dependent insomniacs. According to our results, the mere adherence to the medical-pharmacological withdrawal process does not necessarily bring about attitudinal change, and there is a need for a specific cognitive intervention in order to achieve such a cognitive change. This change in beliefs and attitudes toward sleep and insomnia is believed to play an important role in the facilitation and maintenance of the withdrawal from hypnotics.

The study also provided evidence that a comprehensive and integrative withdrawal programme from long term use of benzodiazepine hypnotics, combining gradual pharmacological tapering of the hypnotics followed by psychological treatment aimed at changing the attitudes toward sleep and insomnia, can effectively result in a meaningful clinical change. The patients who underwent this multifaceted treatment reported a general improvement in their sleep quality and discontinuation of their habitual use of hypnotics; approximately two thirds of them refrained from hypnotics and other sedating anxiolytic medications. The majority of the subjects attributed their improvement predominantly to their commitment to the withdrawal project, to the information they received, and to the psychological intervention.

The results of the short term cognitive-behavioural intervention, which was aimed at changing the perceptions and thereby the emotional reactions towards insomnia, showed that the major change in attitudes occurred between Time 2 (at the termination of the pharmacological withdrawal stage), and Time 3 (after completing the cognitive-behavioural treatment), suggesting that the direct cognitive intervention was the major factor affecting attitudinal change. While a tendency towards attitude change appeared during the medical withdrawal stage, it did not reach significance, indicating that the general commitment to the withdrawal process and the medical and pharmacological treatment do not lead necessarily to attitude change. These findings also pointed to the fact that the subjective improvement in sleep quality reported by our subjects, despite the absence of a significant objective change in their total sleep time and sleep efficiency (as measured by polysomnography and actigraphy), may be attributed – at least partly – to the cognitive-behavioural intervention that followed the pharmacological withdrawal. It could be argued that the mere commitment to the withdrawal process, and

https://doi.org/10.1017/S135246589826406X Published online by Cambridge University Press

hence the motivation and effort made by the patients for improving their sleep, may facilitate, by themselves, the subjective improvement. However, even this tendency for subjective report of improvement does not necessarily reflect, or lead to, a change in beliefs and attitudes towards sleep. The clinical effectiveness of this intervention is reflected in the attitudinal change regarding beliefs about sleep and insomnia.

It seems that the timing of the cognitive-behavioural intervention, within the broader framework of the withdrawal treatment, is an important factor in the resulting attitude change. In the current study the cognitive-behavioural treatment was conducted after the completion of the pharmacological withdrawal. This sequence seems optimal because it enables the patients to face their sleep difficulties without the masking effect of the hypnotics and to learn more adaptive strategies to cope with their sleep disorders. In fact, the results obtained by the objective measurements (polysomnography and actigraphy) were used occasionally during the psychological intervention as a means for cognitive and behavioural change. When appropriate, the patients were faced with the evidence regarding minor changes in their sleep despite withdrawal, and this knowledge was used for further strengthening of their newly acquired beliefs that hypnotics may not solve their insomnia but rather lead to undesirable results.

The design of our study also provided us with the opportunity to disentangle and measure the specific effects of the different components of the programme on attitude change and subjective evaluations of sleep. The role of attitudes, faulty beliefs, expectations, and attributions in heightening emotional arousal and thereby creating or enhancing existing insomnia was described extensively by Morin (1993). It has been reported that individuals with chronic sleep disturbances experience more psychological distress, report greater impairments of daytime functioning, take more sick leave, are more preoccupied with somatic problems and utilize health care sources more often than good sleepers (Morin et al., 1994).

In light of this evidence the results obtained in our study have important clinical implications for the management of insomnia. Cognitive, behavioural and educational interventions, such as those utilized in our clinical trial, may be implemented within a relative short term treatment and may yield promising results. Changing the maladaptive sleep habits along with altering dysfunctional beliefs and attitudes about sleep and educating patients about healthier sleep hygiene practices can be a viable alternative to pharmacological treatments of insomnia, whose shortcomings associated with long term use are well documented (NIH, 1991; Ashton, 1995b). It is plausible to assume that in addition to their role in promoting sleep, the cognitive-behavioural interventions can help to counteract the severity of withdrawal symptoms. There is a need for further research to verify that the addition of cognitive behaviour therapy may prevent relapse to hypnotic use, relative to a medical withdrawal alone.

As indicated previously, this study employed a within-subjects design in which the different times of assessment were planned so as to allow us to compare the effects of the different sequential components of the withdrawal project on attitudes toward sleep. Since the design of this study did not allow for the inclusion of a feasible control group, it cannot be unequivocally ascertained whether the change of attitudes should be attributed to the specific cognitive intervention, or merely to the elapse of time (while off drugs) between the two measurements.

Most clinical procedures for the treatment of insomnia are not necessarily mutually exclusive and could efficiently be combined to maximize therapeutic outcome. Multicomponent and sequential approaches for the treatment of insomnia can offer considerable promise (American Sleep Disorders Association, 1990). However, multicomponent interventions have produced results that were compatible but not always superior to the most effective single-therapy components (Lichstein & Riedel, 1994). It has been claimed by Lacks and Morin (1992) that this may be partly due to the fact that earlier studies sometimes combined various procedures in a hit-or-miss fashion and without much of a rationale for doing so. Although our study does not examine the specific effectiveness of the cognitive-behaviour component on the success of withdrawal from chronic use of benzodiazepine hypnotics, it does suggest that it is necessary to implement this cognitive-behavioural intervention in order to achieve attitude change toward sleep and insomnia. Our findings suggest that the integration of a medically supervised pharmacological withdrawal plan together with a cognitive and educational treatment, each component aimed at targeting a specific facet of the insomnia complaints, seems to be clinically justified and can maximize the long term therapeutic gains. There is a need to further explore the effect of different single treatments as well as packaged treatments and to improve the assessment procedures for tailoring the individual treatments or packages to the specific needs and underlying sleep pathology of different patients. The results also need to be replicated in other samples of patients, and additional trials with various types of insomniac populations will allow for greater generalization of our findings.

The reported improvement achieved by the end of the cognitive-behavioural treatment was maintained at 3 and 12 months follow-ups, which indicates a persistent therapeutic effect. Although the contention that attitude change may prevent the resumption of hypnotic use needs to be replicated in a larger group of patients with greater generalizability, it is plausible to assume that the cognitive change in attitudes towards insomnia and sleep may play a central role in the long term efficacy of the withdrawal programme from chronic use of hypnotics. As one of our patients stated: "I am not sure if I sleep better, but I surely worry less when I don't".

Acknowledgements

I am grateful to Dalia Hacohen for her assistance during data collection, and to the staff of the Technion Sleep Medicine Center for their helpful cooperation.

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